

CLAIMS

What is claimed is:

- 5 1. A method of coloring and lightening hair to provide more vibrant, natural and long-lasting color with reduced damage comprising carrying out the following sequential steps:
- 10 (e) contacting said hair with a substantially inactive mixture of oxidative hair dye precursors wherein the rate of oxidation of hair dye precursors/ rate of diffusion of hair dye precursors is less than about 1;
- 15 (f) allowing said mixture to remain in said hair for a period of about 5 minutes to about 60 minutes;
- 20 (g) contacting said hair with an aqueous developer composition comprising a mixture of a persulfate salt, a peroxide, and a basifying compound, wherein the weight ratio of persulfate salt to peroxide is in the range from about 1 to about 4;
- 25 (h) allowing the composition in step (c) to remain on said hair for a period of about 30 seconds to about 60 minutes.
2. The method according to claim 1, wherein the oxidative hair dye precursor comprises a primary intermediate and optionally a coupler.
3. The method according to claim 2, wherein said primary intermediate and optional coupler are selected from the group consisting of m-aminophenol; 3-methyl-p-aminophenol; 2,3-dimethyl-p-aminophenol; p-phenylene diamine; p-toluenediamine; p-phenylenediamine; 2-chloro-p- phenylenediamine; N-phenyl-p-phenylenediamine;

N-2-methoxyethyl-p-phenylenediamine; N,N-bis-(hydroxyethyl)-p-phenylenediamine;
2-hydroxymethyl-p-phenylenediamine; 2-hydroxyethyl-p-phenylenediamine; 4, 4'-
diaminodiphenylamine; 2,6-dimethyl-p-phenylenediamine; 2-isopropyl-p-
phenylenediamine; N-(2-hydroxypropyl)-p-phenylenediamine; 2-propyl-p-
phenylenediamine; 1,3-N, N-bis-(2-hydroxyethyl)-N, N-bis (4-aminophenyl)- 2-
propanol; 2-methyl-4-dimethylaminoaniline; p-aminophenol; p- methylaminophenol;
3-methyl-p-aminophenol; 2-hydroxymethyl-p-aminophenol; 2-methyl-p-aminophenol;
2-(2-hydroxyethylaminomethyl)-p-aminophenol; 2-methoxymethyl-p-aminophenol;
and 5-aminosalicylic acid; catechol; pyrogallol; o-aminophenol; 2, 4-diaminophenol;
2- ethylamino-p-cresol; 2,3-dihydroxynaphthalene; 5-methyl-o-aminophenol; 6-
methyl-o-aminophenol; and 2-amino-5-acetaminophenol; 2-methyl-1- naphthol; 1-
acetoxy-2-methylnaphthalene; 1,7-dihydroxynaphthalene; resorcinol; 4-
chlororesorcinol; 1-naphthol; 1,5-dihydroxynaphthalene; 2,7-dihydroxynaphthalene;
2-methylresorcinol; 1-hydroxy-6-aminonaphthalene- 3-sulfonic acid; thymol (2-
isopropyl-5-methylphenol); 1,5-dihydroxy-1,2, 3,4-tetrahydronaphthalene; 2-
chlororesorcinol; 2,3-dihydroxy-1,4- naphthoquinone; and 1-naphthol-4-sulfonic acid;
m-phenylenediamine; 2-(2,4- diaminophenoxy)ethanol; N,N-bis(hydroxyethyl)-m-
phenylenediamine; 2,6- diaminotoluene; N,N-bis(hydroxyethyl)-2,4-
diaminophenetole; bis(2,4- diaminophenoxy)-1,3-propane; 1-hydroxyethyl-2,4-
diaminobenzene; 2-amino- 4 hydroxyethylaminoanisole; aminoethoxy-2,4-
diaminobenzene; 2,4- diaminophenoxyacetic acid; 4,6-bis(hydroxyethoxy)-m-
phenylenediamine; 2,4-diamino-5-methylphenetole; 2,4-diamino-5-
hydroxyethoxytoluene; 2,4- dimethoxy 1,3-diaminobenzene; and 2,6-
bis(hydroxyethylamino) toluene; m-aminophenol; 2-hydroxy-4-
carbamoylmethylaminotoluene; m-carbamoylmethylaminophenol; 6-
hydroxybenzomorpholine; 2-hydroxy-4-aminotoluene; 2-hydroxy-4-
hydroxyethylaminotoluene; 4,6-dichloro-m-aminophenol; 2-methyl-m- aminophenol;
2-chloro-6-methyl-m-aminophenol; 2-hydroxyethoxy-5- aminophenol; 2-chloro-5-
trifluoroethylaminophenol; 4-chloro-6-methyl-m- aminophenol; N-cyclopentyl-3-

aminophenol; N-hydroxyethyl-4-methoxy-2-methyl-m-aminophenol and 5-amino-4-methoxy-2-methylphenol; 2-dimethylamino-5-aminopyridine; 2,4,5,6-tetraaminopyrimidine; 4,5-diamino-1-methylpyrazole; 4,5-diamino-1-hydroxymethylpyrazole, 4,5-diamino-1-hydroxyethylpyrazole; 1-phenyl-3-methyl-5-pyrazolone; 6-methoxy-8-aminoquinoline; 2,6-dihydroxy-4-methylpyridine; 5-hydroxy-1,4-benzodioxane; 3,4-methylenedioxyphenol; 4-hydroxyethylamino-1,2-methylenedioxybenzene; 2,6-dihydroxy-3,4- dimethylpyridine; 5-chloro-2,3-dihydroxypyridine; 3,5-diamino-2,6- dimethoxypyridine; 2-hydroxyethylamino-6-methoxy-3-aminopyridine; 3,4- methylenedioxyaniline; 2,6-bis-hydroxyethoxy-3,5-diaminopyridine; 3-amino-5-hydroxy-2,6-dimethoxypyridine; 2-bromo-4,5-methylenedioxyphenol; 3-amino-2-methylamino-6- methoxypyridine; 2-amino-3-hydroxypyridine; 2,6-diaminopyridine; 5-(3,5-diamino-2-pyridyloxy)-1,3-dihydroxypentane; 3-(3,5-diamino-2-pyridyloxy)-2-hydroxypropanol; 4-hydroxy-2,5,6-triaminopyrimidine, and mixtures thereof.

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4. The method according to claim 2, wherein said primary intermediate has a pKa in the range of from about 3 to about 10 and is selected from the group consisting of the neutral or salt forms of para- phenylenediamine, derivatized para-phenylenediamines, para-aminophenol, substituted para aminophenols, 4,5 – diaminopyrazole, substituted 4,5 – diaminopyrazole, polyamino-pyrimidine, hydroxy-polyaminopyrimidine, and other substituted polyaminopyrimidine and mixtures thereof.

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 5. The method according to claim 2 wherein the primary intermediate and the optional coupler is each present at a level of from about 0.1 Wt% to about 10 Wt% based on the total weight of the oxidative hair dye precursor mixture and the weight ratio of the primary intermediate to the coupler is in the range of from about 100: to about 1:100.

6. The method according to claim 1, wherein the pH of the mixture of oxidative hair dye precursors is selected such that less than 50% of the molecules comprising the oxidative hair dye precursors are in their anionic form when they first contact the hair before the developer composition is applied.

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7. The method according to claim 1, wherein the pH of the mixture of oxidative hair dye precursors is selected such at least 50% of the molecules comprising the oxidative hair dye precursors are in their nonionic forms when they first contact the hair before the developer composition is applied.

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8. The method according to claim 1 wherein the aqueous developer is formed by mixing an aqueous solution comprising the peroxide with a solid composition in powder form comprising the persulfate salt.

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9. The method according to claim 1 wherein the persulfate salt of the aqueous developer composition is selected from the group consisting of sodium persulfate, potassium persulfate, ammonium persulfate and mixtures thereof.

10. The method according to claim 1 wherein the peroxide of the aqueous developer
20 composition is selected from the group consisting of hydrogen peroxide, urea peroxide, melamine peroxide, sodium perborate, sodium percarbonate and mixtures thereof.

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11. The method according to claim 1 further comprising applying to the hair an aligning and distributing means after the hair has been contacted with the oxidative hair dye precursor mixture but before the hair is contacted with the aqueous developer composition.

12. The method according to claim 11 wherein the aligning and distributing means is selected from the group consisting of a comb, a brush, a pick, an elongated element coupled in an open/close relationship, a towelette, a cloth, a sponge and a combination of these implements.

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13. A kit for providing more vibrant, natural and long-lasting color to hair which comprises:

- (e) a hair colorant composition comprising oxidative hair dye precursors in a container,
- (f) a composition comprising a peroxide in a container,
- (g) a composition comprising a persulfate salt in a container,
- (h) an alkaline composition used to activate the peroxide/persulfate
- (i) written instructions that direct that the hair colorant composition is first applied to the hair as a substantially inactive mixture for about 5 minutes to about 60 minutes before a hair color developer composition, created by mixing the peroxide composition, the persulfate salt composition and the alkaline composition, is applied to the hair,

wherein the oxidative hair dye precursors of the hair colorant composition satisfies the condition that the rate of oxidation of hair dye precursors/rate of diffusion of hair dye precursors <1 when the hair colorant composition is applied to the hair before the hair is contacted with the hair color developer composition.

25 14. The kit according to claim 13 further comprising a hair an aligning and distributing means that contains at least one comb element or at least one brush element.

15. The kit according to claim 14, wherein the aligning and distributing means is selected from the group consisting of a comb, a brush, a pick, an elongated element

coupled in an open/close relationship, a towelette, a cloth, a sponge and a combination of these implements.

16. The kit according to claim 23 further comprising conditioning agents, color sealants, damage control agents, hair benefit agents, perfumes, moisturizers and mixtures thereof, either packaged separately or as part of the oxidative hair dye precursor, peroxide or persulfate compositions.
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17. A method according to claim 1, for coloring hair which comprises providing said hair with more vibrant and longer lasting color and greater lift.
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